Hervé Delingette

Equipe-Projet Asclepios - INRIA Sophia-Antipolis
2004, Route des Lucioles BP 93
06 902 Sophia Antipolis Cedex, France
Tel: +33 (0)4 92 38 77 64
Fax: +33 (0)4 92 38 76 69
Email : Herve.Delingette@sophia.inria.fr

44 years old, maried

CURRENT STATUS

Research Director in the Asclepios team at INRIA, Sophia-Antipolis

EDUCATION

1993-1994	- PhD from École Centrale de Paris entitled *Modélisation, Déformation et Reconnaissance d'objets tridimensionnels à l'aide de maillages simplexes* with high honors.
1986-1989	- Diplôme d'ingénieur from École Centrale de Paris
1984-1986	- Baccalauréat C with high honors. Preparatory school at Lycée Carnot (Dijon).

PROFESSIONAL EXPERIENCE

Since May 2005	- **Responsible for the large initiative action CARDIOSENSE3D** on electromechanical cardiac modeling
March 2006	- Habilitation (Habilitation à Diriger des Recherches), Université de Nice Sophia-Antipolis
June 2002	- **Research Director** in the Asclepios team at INRIA Sophia-Antipolis
September 1994	- **Senior Research Scientist** (Chargé de Recherche) in the Epidaure team at INRIA Sophia-Antipolis
Since 1994	- Scientific Consultant for several companies (l'Institut Français du Pétrole, Philips Healthcare Paris, Data Proxima, Median, Quantificare...)
1992-1993	- Visiting scholar for 7 months at the Human Interface Laboratories of **Nippon Telegraph and Telephone** (NTT) in Yokosuka (Japan) : Modeling and animation of facial deformable models
1989-1992	- Visiting scholar at the **Robotics Institute** of **Carnegie-Mellon University** in Pittsburgh (USA) : 3D Reconstruction of rock samples (**Mars Rover** Project funded by **NASA**) and 3D object recognition

RESEARCH ACTIVITY

Awards	- *Best paper award* at the conference IEEE Robotics and Automation 1991 in Seoul (Korea) - Co-winner of the *Laval Virtual award medical section* in 1999 - ARTS award given by Apple Inc to the CardioSense3D research action in 2008.
Invited Lectures	- Newton Institute, ICT Bio 2008, ISBI 2007, JNRR 2007, ISSIR 2006, ENRST 2005, CURAC 2004, MJST 2004, CFM 2003...
Program Committee	- ICCV, CVPR, ECCV, IPMI, MICCAI, ICPR, FIMH, many workshops
Review Activity	- Conferences : Eurographics, SIGGRAPH, ICCV, CVPR, IPMI, Miccai... Journals : IEEE TMI, IEEE TMBS, IEEE TVCG, Medical Image Analysis, IJCV...
Editorial Board	- Medical Image Analysis journal (Elsevier, IF 3.6)
Chair	- Area Chair for MICCAI 2004, MICCAI 2005, MICCAI 2006 and session Chair for Miccai 2001, 2004
Conference Chair	- *Conference IS4TM* in Juan-les-Pins in June 2003 and program chair of the conference FIMH 2009 in Nice
Student Supervision	- Supervision of *15 MASTER student* and co-supervision of *17 Phd Students*
Thesis Committee	- Since 2002, member of 34 Phd thesis committees, 24 times as reviewer (10 times outside France : Canada, Belgium, Switzerland, UK, Danemark, Finland) and member of 5 habilitation thesis committees, 3 times as reviewer.
Scientific Responsibilities	- *Scientific Director* of the international summer school CIMPA-UNESCO on the topic of Virtual Reality in 1995 in Nice - Coorganized with A. Frangi the workshop "From Statistical Atlases to Personalized Models : Understanding Complex Diseases in Populations and Individuals" associated with Miccai 2006 - Coorganised the scientific program for the INRIA-NIH workshop in April 2007 and INRIA-Singapour workshop in December 2002 - *Organisation and Animation* of the INRIA coordinated action AISIM (1997-1999) on the topics of surgery simulation including 5 research teams. - Since 2005, Responsible for the INRIA Large Initiative Action CardioSense3D on cardiac modeling - Member of the INRIA Evaluation Committee (2004-2006).
Scientific Visibility	- Co-author of a book chapter in the book series "Handbook of Numerical Analysis" - Invited articles for the magazines "Communications of the ACM" and "Proceedings of the IEEE" - Many invited talks at various universities (Carnegie-Mellon University, CaseWestern University, Johns Hopkins University, Standford University, University of Wisconsin, Siemens Corporate Research, Philips Research...)
Publication Index	- h-index (source Google Scholar) : 37 (Max citation 567)

TECHNOLOGY TRANSFER ACTIVITY

1998-2000	- European Project Roboscope
1997-1999	- European Project (Eureka) MASTER
2003-2006	- European Project (Eureka) ODYSSEUS
2004-2011	- Contracting study for Philips HealthCare Paris
2006-2009	- European Project (RTN) 3D Anatomical Human
2008-2011	- European Project (STREPS) Passport
2008-2012	- European Project (IP) Euheart
Since 2000	- Co-founder of the startup company QUANTIFICARE
Since 1998	- Co-author of 2 patents on soft tissue modeling

TEACHING ACTIVITY

Since 2009	- Master Course (9h) on computational physiology at the University Nice-Sophia-Antipolis
Since 1995	- Master Course (15h) on medical image analysis at Ecole Centrale Paris and Master MVA of l'ENS Cachan
1995-2006	- Master Course (15h) on medical image analysis at the University Nice-Sophia-Antipolis
2000-2002	- Master Course (24h) on medical image analysis at the University Paris-Sud XI (Orsay)

LIST OF PUBLICATIONS

Conference Proceedings

[1] Nicholas Ayache, Hervé Delingette, and Maxime Sermesant, editors. *Functional Imaging and Modeling of the Heart - FIMH 2009*, volume 5528 of *LNCS*, Nice, France, June 2009. Springer. 537 pages.

[2] Hervé Delingette and Alejandro Frangi, editors. *Proceedings of the MICCAI Workshop - From Statistical Atlases to Personalized Models: Understanding Complex Diseases in Populations and Individuals*, 2006.

[3] N. Ayache and H. Delingette, editors. *Proceedings of the International Symposium on Surgery Simulation and Soft Tissue Modeling*, volume 2673 of *Lecture Notes in Computer Science*, Juan-les-Pins, France, June 2003. Springer.

Thesis

[1] H. Delingette. *Modélisation, Déformation et Reconnaissance d'objets tridimensionnels a l'aide de maillages simplexes*. Thèse de sciences, Ecole Centrale de Paris, July 1994.

[2] Hervé Delingette. *Modélisation de structures déformables*. Habilitation à diriger des recherches, Université Nice Sophia-Antipolis, March 2006.

Book Chapters

[1] T. Heimann and Hervé Delingette. Model-based segmentation. In Thomas Martin Deserno, editor, *Biomedical Image Processing*. Springer, 2011.

[2] Nicholas Ayache, Olivier Clatz, Hervé Delingette, Grégoire Malandain, Xavier Pennec, and Maxime Sermesant. Asclepios: a research project-team at inria for the analysis and simulation of biomedical images. In Y. Bertot, G. Huet, J.-J. Lévy, and G. Plotkin, editors, *From semantics to computer science: essays in honor of Gilles Kahn*, pages 415–436. Cambridge University Press, 2009.

[3] H. Delingette and N. Ayache. Soft tissue modeling for surgery simulation. In N. Ayache, editor, *Computational Models for the Human Body*, Handbook of Numerical Analysis (Ed : Ph. Ciarlet), pages 453–550. Elsevier, 2004.

[4] A. Pitiot, H. Delingette, and P.M. Thompson. Automated image segmentation: Issues and applications. In Cornelius T. Leondes, editor, *Medical Imaging Systems Technology*, volume 3. World Scientific, 2005.

[5] Luc Soler, Nicholas Ayache, Stéphane Nicolau, Xavier Pennec, Clément Forest, Hervé Delingette, Didier Mutter, and Jacques Marescaux. Traitements d'images médicales pour la planification, la simulation et l'aide intra-opératoire des actes chirurgicaux. In M. Faupel, P. Smigielski, and R. Grzymala, editors, *Imagerie et Photonique pour les sciences du vivant et la médecine*, pages 19–31. Edition Fontis Media, 2004.

[6] Nicholas Ayache, Stephane Cotin, and Hervé Delingette. Surgery simulation with visual and haptic feedback. In Y. Shirai and S. Hirose, editors, *Robotics Research, the Eigth International Symposium*, pages 311–316. Springer, 1998.

[7] H. Delingette and G. Subsol. L'image dans la réalité virtuelle. In *Nouvelles Interfaces Homme-Machine*, number 18 in ARAGO. Observatoire Français des Techniques Avancées, 1996.

Journal Articles (Peer reviewed)

[1] O. Camara, M. Sermesant, P. Lamata, L. Wang, M. Pop, J. Relan, M. De Craene, H. Delingette, H. Liu, S. Niederer, A. Pashaei, G. Plank, D. Romero, R. Sebastian, K.C.L. Wong, H. Zhang, N. Ayache, A.F. Frangi, P. Shi, N.P. Smith, and G.A. Wright. Inter-model consistency and complementarity: Learning from ex-vivo imaging and electrophysiological data towards an integrated understanding of cardiac physiology. *Progress in Biophysics and Molecular Biology*, 2011. Accepted.

[2] François Chung, Jérôme Schmid, Nadia Magnenat-Thalmann, and Hervé Delingette. Comparison of statistical models performance in case of segmentation using a small amount of training datasets. *The Visual Computer*, 27(2):141–151, February 2011. 10.1007/s00371-010-0536-9.

[3] H. Delingette, F. Billet, K. C. L. Wong, M. Sermesant, K. Rhode, M. Ginks, C. A. Rinaldi, R. Razavi, and N. Ayache. Personalization of cardiac motion and contractility from images using variational data assimilation. *IEEE Transactions in Biomedical Engineering Letters*, 2011. In Press.

[4] E. Konukoglu, J. Relan, U. Cilingir, B. Menze, P. Chinchapatnam, A. Jadidi, H. Cochet, M. Hocini, H. Delingette, P. Jaïs, M. Haïssaguerre, N. Ayache, and M. Sermesant. Efficient probabilistic model personalization integrating uncertainty on data and parameters: Application to eikonal-diffusion models in cardiac electrophysiology. *Progress in Biophysics and Molecular Biology*, 2011. Accepted.

[5] Tommaso Mansi, Xavier Pennec, Maxime Sermesant, Hervé Delingette, and Nicholas Ayache. ilogdemons: A demons-based registration algorithm for tracking incompressible elastic biological tissues. *Int. J. of Computer Vision*, 2011. To appear.

[6] Tommaso Mansi, Ingmar Voigt, Benedetta Leonardi, Xavier Pennec, Stanley Durrleman, Maxime Sermesant, Hervé Delingette, Andrew M. Taylor, Younes Boudjemline, Giacomo Pongiglione, and Nicholas Ayache. A statistical model for quantification and prediction of cardiac remodelling: Application to tetralogy of fallot. *IEEE Transactions on Medical Images*, 9(30):1605–1616, September 2011.

[7] E. Pernod, M. Sermesant, E. Konukoglu, J. Relan, H. Delingette, and N. Ayache. A multi-front eikonal model of cardiac electrophysiology for interactive simulation of radio-frequency ablation. *Computers and Graphics*, 35:431–440, 2011.

[8] Jatin Relan, Phani Chinchapatnam, Maxime Sermesant, Kawal Rhode, Matt Ginks, Hervé Delingette, C. Aldo Rinaldi, Reza Razavi, and Nicholas Ayache. Coupled personalization of cardiac electrophysiology models for prediction of ischaemic ventricular tachycardia. *Journal of the Royal Society Interface Focus*, 1(3):396–407, 2011.

[9] Jatin Relan, Mihaela Pop, Hervé Delingette, Graham Wright, Nicholas Ayache, and Maxime Sermesant. Personalisation of a cardiac electrophysiology model using optical mapping and mri for prediction of changes with pacing. *IEEE Transactions on Biomedical Engineering*, 2011.

[10] M. Sermesant, R. Chabiniok, P. Chinchapatnam, T. Mansi, F. Billet, P. Moireau, J.M. Peyrat, K. Wong, J. Relan, K. Rhode, M. Ginks, P. Lambiase, H. Delingette, M. Sorine, C.A. Rinaldi, D. Chapelle, R. Razavi, and N. Ayache. Patient-specific electromechanical models of the heart for prediction of the acute effects of pacing in crt: a first validation. *Medical Image Analysis*, 2011. Accepted subject to minor revisions.

[11] N. Smith, A. de Vecchi, M. McCormick, D. Nordsletten, O. Camara, A.F. Frangi, H. Delingette, M. Sermesant, J. Relan, N. Ayache, M. W. Krueger, W. Schulze, R. Hose, I. Valverde, P. Beerbaum, C. Staicu, M. Siebes, J. Spaan, P. Hunter, J. Weese, H. Lehmann, D. Chapelle, and R. Razavi. euheart: Personalized and integrated cardiac care using patient-specific cardiovascular modelling. *Journal of the Royal Society Interface Focus*, 1(3):349–364, 2011.

[12] C. Öhman, D. M. Espino, T. Heimann, M. Baleani, H. Delingette, and M. Viceconti. Subject-specific knee joint model: Design of an experiment to validate a multi-body finite element model. *The Visual Computer*, 27:153–159, 2011. To appear.

[13] Ender Konukoglu, Olivier Clatz, Hervé Delingette, and Nicholas Ayache. Personalization of reaction-diffusion tumor growth models in mr images: Application to brain gliomas characterization and radiotherapy planning. In Thomas S. Deisboeck and Georgios Stamatakos, editors, *Multiscale Cancer Modeling*, Chapman & Hall/CRC Mathematical & Computational Biology. CRC Press, December 2010.

[14] Jean-Marc Peyrat, Hervé Delingette, Maxime Sermesant, Chenyang Xu, and Nicholas Ayache. Registration of 4d cardiac ct sequences under trajectory constraints with multichannel diffeomorphic demons. *IEEE Transactions on Medical Imaging*, 29(7):1351–1368, July 2010.

[15] D. Gianni, S. McKeever, T. Yu, R. Britten, Hervé Delingette, A. Frangi, P. Hunter, and Nic Smith. Sharing and reusing cardiovascular anatomical models over the web: a step towards the implementation of the virtual physiological human project. *Philos Transact of the Royal Society A Mathematical Physical Engineering Sciences*, 368:3039–3056, June 2010.

[16] Stéphanie Marchesseau, T. Heimann, Simon Chatelin, Rémy Willinger, and Hervé Delingette. Fast porous visco-hyperelastic soft tissue model for surgery simulation: application to liver surgery. *Progress in Biophysics and Molecular Biology*, 103(2-3):185–196, 2010.

[17] Ender Konukoglu, Olivier Clatz, Pierre-Yves Bondiau, Hervé Delingette, and Nicholas Ayache. Extrapolating glioma invasion margin in brain magnetic resonance images: Suggesting new irradiation margins. *Medical Image Analysis*, 14(2):111–125, 2010.

[18] Mihaela Pop, Maxime Sermesant, D Lepiller, M V Truong, Elliot McVeigh, Eugene Crystal, Alexander Dick, Hervé Delingette, Nicholas Ayache, and Graham Wright. Fusion of optical imaging and mri for the evaluation and adjustment of macroscopic models of cardiac electrophysiology: A feasibility study. *Medical Image Analysis*, 13(2):370–80, April 2009.

[19] Ender Konukoglu, Olivier Clatz, Bjoern H. Menze, Marc-André Weber, Bram Stieltjes, Emmanuel Mandonnet, Hervé Delingette, and Nicholas Ayache. Image guided personalization of reaction-diffusion type tumor growth models using modified anisotropic eikonal equations. *IEEE Transactions on Medical Imaging*, 29(1):77–95, 2010.

[20] Pierre-Yves Bondiau, Olivier Clatz, Maxime Sermesant, Pierre-Yves Marcy, Hervé Delingette, Marc Frenay, and Nicholas Ayache. Biocomputing: numerical simulation of glioblastoma growth using diffusion tensor imaging. *Physics in Medicine and Biology*, 53(4):879–93, February 2008.

[21] H. Delingette. Triangular springs for modeling nonlinear membranes. *IEEE Transactions on Visualisation and Computer Graphics*, 14(2), March/April 2008.

[22] M Sermesant, J M Peyrat, P Chinchapatnam, F Billet, T Mansi, K Rhode, H Delingette, R Razavi, and N Ayache. Toward patient-specific myocardial models of the heart. *Heart Failure Clinics*, 4(3):289–301, July 2008.

[23] M. A. Audette, H. Delingette, A. Fuchs, O. Burgert, and K. Chinzei. A topologically faithful, tissue-guided, spatially varying meshing strategy for computing patient-specific head models for endoscopic pituitary surgery simulation. *Journal of Computer Aided Surgery*, 12(1):43–52, January 2007.

[24] Olivier Clatz, Stéphane Litrico, Hervé Delingette, Philippe Paquis, and Nicholas Ayache. Dynamic model of communicating hydrocephalus for surgery simulation. *IEEE Transactions on Biomedical Engineering*, 54(4):755–758, April 2007.

[25] A. Pitiot, H. Delingette, and P.M. Thompson. Learning shape correspondence for n-d curves. *International Journal of Computer Vision (IJCV)*, 71(1):71–88, January 2007.

[26] Hervé Delingette, Xavier Pennec, Luc Soler, Jacques Marescaux, and Nicholas Ayache. Computational models for image guided, robot-assisted and simulated medical interventions. *Proceedings of the IEEE*, 94(9):1678– 1688, September 2006.

[27] Valérie Moreau-Villéger, Hervé Delingette, Maxime Sermesant, Hiroshi Ashikaga, Elliot McVeigh, and Nicholas Ayache. Building maps of local apparent conductivity of the epicardium with a 2d electrophysiological model of the heart. *IEEE Transactions on Biomedical Engineering*, 53(8):1457–1466, August 2006.

[28] Maxime Sermesant, Hervé Delingette, and Nicholas Ayache. An electromechanical model of the heart for image analysis and simulation. *IEEE Transactions in Medical Imaging*, 25(5):612–625, 2006.

[29] A. Pitiot, H. Delingette, and P.M. Thompson. Automated image segmentation: Issues and applications. In Cornelius T. Leondes, editor, *Medical Imaging Systems Technology*, volume 3. World Scientific, 2005.

[30] Olivier Clatz, Hervé Delingette, Ion-Florin Talos, Alexandra J. Golby, Ron Kikinis, Ferenc Jolesz, Nicholas Ayache, and Simon Warfield. Robust non-rigid registration to capture brain shift from intra-operative mri. *IEEE Transactions on Medical Imaging*, 24(11):1417–1427, Nov. 2005.

[31] Olivier Clatz, Maxime Sermesant, Pierre-Yves Bondiau, Hervé Delingette, Simon K. Warfield, Grégoire Malandain, and Nicholas Ayache. Realistic simulation of the 3d growth of brain tumors in mr images coupling diffusion with mass effect. *IEEE Transactions on Medical Imaging*, 24(10):1334–1346, October 2005.

[32] H. Delingette and N. Ayache. Hepatic surgery simulation. *Communications of the ACM*, 48(2):31–36, February 2005.

[33] C. Forest, H. Delingette, and N. Ayache. Removing tetrahedra from manifold tetrahedralisation : application to real-time surgical simulation. *Medical Image Analysis*, 9(2):113–122, April 2005.

[34] J. Montagnat and H. Delingette. 4d deformable models with temporal constraints : application to 4d cardiac image segmentation. *Medical Image Analysis*, 9(1):87–100, February 2005.

[35] M. Sermesant, K. Rhode, G. Sanchez-Ortiz, O. Camara, R. Andriantsimiavona, S. Hegde, D. Rueckert, P. Lambiase, C. Bucknall, E. Rosenthal, H. Delingette, D. Hill, N. Ayache, and R. Razavi. Simulation of cardiac pathologies using an electromechanical biventricular model and xmr interventional imaging. *Medical Image Analysis*, 9(5):467–480, 2005.

[36] A. Pitiot, H. Delingette, P. M. Thompson, and N. Ayache. Expert knowledge guided segmentation system for brain mri. *NeuroImage*, 23(supplement 1):S85–S96, 2004. Special Issue: Mathematics in Brain Imaging.

[37] Olivier Clatz, Hervé Delingette, Eric Bardinet, Didier Dormont, and Nicholas Ayache. Création d'un modèle biomécanique spécifique du cerveau par l'analyse d'images et son application à la neurochirurgie stéréotaxique. *Mecanique et Industrie*, 4(4):429–433, 2003. Numéro spécial CFM 2003.

[38] J. Montagnat, M. Sermesant, H. Delingette, G. Malandain, and N. Ayache. Anisotropic filtering for model-based segmentation of 4d cylindrical echocardiographic images. *Pattern Recognition Letters - Special Issue on Ultrasonic Image Processing and Analysis*, 24(4-5):815–828, February 2003.

[39] G. Picinbono, H. Delingette, and N. Ayache. Non-linear anisotropic elasticity for real-time surgery simulation. *Graphical Models*, 65(5):305–321, September 2003.

[40] Maxime Sermesant, Clément Forest, Xavier Pennec, Hervé Delingette, and Nicholas Ayache. Deformable biomechanical models: Application to 4d cardiac image analysis. *Medical Image Analysis*, 7(4):475–488, December 2003.

[41] G. Picinbono, H. Delingette, and N. Ayache. Modèle déformable élastique non-linéaire pour la simulation de chirurgie en temps réel. *Les Comptes Rendus de l'Académie des Sciences (CRAS), C.R. Biologies*, 325(4):335–344, 2002.

[42] G. Picinbono, J-C. Lombardo, H. Delingette, and N. Ayache. Improving realism of a surgery simulator: linear anisotropic elasticity, complex interactions and force extrapolation. *Journal of Visualisation and Computer Animation*, 13(3):147–167, July 2002.

[43] David Rey, Gérard Subsol, Hervé Delingette, and Nicholas Ayache. Automatic detection and segmentation of evolving processes in 3d medical images: Application to multiple sclerosis. *Medical Image Analysis*, 6(2):163–179, June 2002.

[44] H. Delingette and J. Montagnat. Shape and topology constraints on parametric active contours. *Computer Vision and Image Understanding*, 83(2):140–171, 2001.

[45] J. Montagnat, H. Delingette, and N. Ayache. A review of deformable surfaces: topology, geometry and deformation. *Image and Vision Computing*, 19(14):1023–1040, December 2001.

[46] L Soler, H Delingette, G Malandain, J Montagnat, N Ayache, C Koehl, O Dourthe, B Malassagne, M Smith, D Mutter, and J Marescaux. Fully automatic anatomical, pathological, and functional segmentation from ct scans for hepatic surgery. *Comput Aided Surg*, 6(3):131–42, 2001.

[47] S. Cotin, H. Delingette, and N. Ayache. A hybrid elastic model allowing real-time cutting, deformations and force-feedback for surgery training and simulation. *The Visual Computer*, 16(8):437–452, 2000.

[48] S. Cotin, H. Delingette, and N. Ayache. Real-time elastic deformations of soft tissues for surgery simulation. *IEEE Transactions On Visualization and Computer Graphics*, 5(1):62–73, January-March 1999.

[49] H. Delingette. General object reconstruction based on simplex meshes. *International Journal of Computer Vision*, 32(2):111–146, September 1999.

[50] J.-L. Dugelay, K. Fintzel, S. Valente, and H. Delingette. Clonage de visage et spatialisation video : Outils pour la téléconférence virtuelle. *Traitement du Signal*, 16(1):60–72, July 1999.

[51] N. Ayache, S. Cotin, H. Delingette, J.-M. Clément, J. Marescaux, and M. Nord. Simulation of endoscopic surgery. *Journal of Minimally Invasive Therapy and Allied Technologies (MITAT)*, 7(2):71–77, July 1998.

[52] H. Delingette. Towards realistic soft tissue modeling in medical simulation. *Proceedings of the IEEE : Special Issue on Surgery Simulation*, pages 512–523, April 1998.

[53] J Marescaux, J M Clement, V Tassetti, C Koehl, S Cotin, Y Russier, D Mutter, H Delingette, and N Ayache. Virtual reality applied to hepatic surgery simulation: the next revolution. *Annals of Surgery*, 228(5):627–34, November 1998.

[54] J. Montagnat and H. Delingette. Globally constrained deformable models for 3d object reconstruction. *Signal Processing*, 71(2):173–186, 1998.

[55] L. Soler, G. Malandain, and H. Delingette. Segmentation automatique : application aux angioscanners 3d du foie. *Traitement du signal*, 15(5):411–431, 1998.

[56] G. Quatrehomme, S. Cotin, G. Subsol, H. Delingette, Y. Garidel, G. Grévin, and M. Fidrich. A fully three-dimensional method for facial reconstruction based on deformable models. *Journal of Forensic Sciences*, 42(4):649–652, July 1997.

[57] H. Delingette, M. Hébert, and K. Ikeuchi. Shape representation and image segmentation using deformable surfaces. *Image and Vision Computing*, 10(3):132–144, April 1992.

[58] M. Hébert, H. Delingette, and K. Ikeuchi. Shape representation and image segmentation using deformable surfaces. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 17(7), June 1995.

Journal Articles (Non Peer reviewed)

[1] H. Delingette. Réalité virtuelle et médecine. *Revue de la société des électriciens et des électroniciens (REE)*, 8:43–45, September 1997.

[2] Hervé Delingette and Maxime Sermesant. Le coeur numérique. *Doc Sciences*, 13:26–33, October 2010.

[3] Nicholas Ayache, Olivier Clatz, Hervé Delingette, Grégoire Malandain, Xavier Pennec, and Maxime Sermesant. Vers un patient numérique personnalisé pour le diagnostic et la thérapie guidés par l'image. *Médecine / Sciences*, 27:208–213, March 2011.

[4] Olivier Clatz, Emmanuel Mandonnet, Stéphane Chanalet, Christine Lebrun, Ender Konukoglu, Hervé Delingette, Nicholas Ayache, and Pierre-Yves Bondiau. Modèles biomathématiques de croissance des gliomes : Recherche en informatique et perspectives en neuro-oncologie. *Neurologies*, 9(93):665–667, 2006.

[5] Hervé Delingette and Nicholas Ayache. La simulation de chirurgie hépatique. *Pour la Science*, 52(52):106–109, July 2006.

[6] Luc Soler, Nicholas Ayache, Stéphane Nicolau, Xavier Pennec, Clément Forest, Hervé Delingette, and Jacques Marescaux. Traitement d'images médicales pour la planification, la simulation et l'aide intra-opératoire des actes chirurgicaux. *La Revue de l'Electricité et de l'Electronique*, pages 64–71, janvier 2004.

[7] H. Delingette. Réalité virtuelle et médecine. *Centraliens*, 552:17–18, February 2004.

[8] L Soler, H Delingette, G Malandain, N Ayache, C Koehl, J M Clement, O Dourthe, and J Marescaux. An automatic virtual patient reconstruction from ct-scans for hepatic surgical planning. *Stud Health Technol Inform*, 70:316–22, 2000.

[9] S Cotin, H Delingette, M Bro-Nielsen, N Ayache, J M Clement, V Tassetti, and J Marescaux. Geometric and physical representations for a simulator of hepatic surgery. *Stud Health Technol Inform*, 29:139–51, 1996.

[10] S. Cotin, H. Delingette, N. Ayache, J.M. Clement, J. Marescaux, and M. Nord. Simulation active de chirurgie endoscopique. *Revue Européenne de Technologie Biomédicale (RBM)*, 19(5):167–172, 1997.

International Conference Articles (Peer Reviewed)

[1] Herve Lombaert, Jean-Marc Peyrat, Pierre Croisille, Stanislas Rapacchi, Laurent Fanton, Patrick Clarysse, Hervé Delingette, and Nicholas Ayache. Statistical analysis of the human cardiac fiber architecture from dt-mri. In Leon Axel and Dimitris Metaxas, editors, *Proceedings of FIMH Conference 2011*, volume 6666 of *LNCS*, pages 171–179. Springer, May 2011. ¡a href=http://fimh11.rutgers.edu/¿Best Paper Award¡/a¿.

[2] Herve Lombaert, Jean-Marc Peyrat, Laurent Fanton, Farida Cheriet, Hervé Delingette, Nicholas Ayache, Patrick Clarysse, Isabelle Magnin, and Pierre Croisille. Statistical atlas of human cardiac fibers: Comparison with abnormal hearts. In *Proceedings of STACOM Workshop at MICCAI 2011*. Springer, September 2011.

[3] Herve Lombaert, Jean-Marc Peyrat, Stanislas Rapacchi, Laurent Fanton, Herve Delingette, Nicholas Ayache, and Pierre Croisille. Human statistical atlas of cardiac fiber architecture from dt-mri. In *Proceedings of Intl. Soc. Mag. Reson. Med. (ISMRM) 2011*, volume 19, page 280, May 2011.

[4] Adityo Prakosa, Maxime Sermesant, Hervé Delingette, Eric Saloux, Pascal Allain, Pascal Cathier, Patrick Etyngier, Nicolas Villain, and Nicholas Ayache. Synthetic echocardiographic image sequences for cardiac inverse electro-kinematic learning. In *Proceedings of Medical Image Computing and Computer Assisted Intervention (MICCAI)*, LNCS, page 8p, Toronto, Canada, September 2011. Springer, Heidelberg.

[5] Adityo Prakosa, Maxime Sermesant, Hervé Delingette, Eric Saloux, Pascal Allain, Pascal Cathier, Patrick Etyngier, Nicolas Villain, and Nicholas Ayache. Non-invasive activation times estimation using 3d echocardiography. In *Proc. MICCAI Workshop on Statistical Atlases and Computational Models of the Heart: Mapping Structure and Function + a Cardiac Electrophysiological Simulation Challenge (STACOM+CESC'10)*, volume 6364 of *LNCS*, Beijing, September 2010. Springer.

[6] Jatin Relan, Phani Chinchapatnam, Maxime Sermesant, Kawal Rhode, Hervé Delingette, Reza Razavi, and Nicholas Ayache. Coupled personalisation of electrophysiology models for simulation of induced ischemic ventricular tachycardia. In *Proc. Medical Image Computing and Computer Assisted Intervention (MICCAI'10)*, LNCS, Beijing, China, September 2010.

[7] Jatin Relan, M. Pop, Hervé Delingette, G.A. Wright, Nicholas Ayache, and Maxime Sermesant. Personalisation of a 3d cardiac electrophysiology model for ventricular myocardium using optical mapping and mri. In *MICCAI Workshop on Statistical Atlases and Computational Models of the Heart: Mapping Structure and Function (STACOM) and a Cardiac Electrophysiological Simulation Challenge (CESC'10)*, volume 6364 of *LNCS*. Springer, 2010.

[8] Ken C. L. Wong, Florence Billet, Tommaso Mansi, R. Chabiniok, Maxime Sermesant, Hervé Delingette, and Nicholas Ayache. Cardiac motion estimation using a proactive deformable model: evaluation and sensitivity analysis. In *MICCAI Workshop on Statistical Atlases and Computational Models of the Heart: Mapping Structure and Function (STACOM) and a Cardiac Electrophysiological Simulation Challenge (CESC'10)*, volume 6364 of *LNCS*, pages 154–163. Springer, 2010.

[9] Erik Pernod, Maxime Sermesant, Jatin Relan, and Hervé Delingette. Interactive real time simulation of cardiac radio-frequency ablation. In *Proc. of Eurographics Workshop on Visual Computing for Biology and Medicine (2010) (VCBM'2010)*, Leipzig, August 2010. Best Paper Award.

[10] Stéphanie Marchesseau, T. Heimann, Simon Chatelin, Rémy Willinger, and Hervé Delingette. Multiplicative jacobian energy decomposition method for fast porous visco-hyperelastic soft tissue model. In *Proc. Medical Image Computing and Computer Assisted Intervention (MICCAI'10)*, LNCS, Beijing, China, September 2010. Springer.

[11] Tommaso Mansi, Maxime Sermesant, Hervé Delingette, Xavier Pennec, Nicholas Ayache, and Younes Boudjemline. Modèles numériques pour la simulation et la prédiction de la fonction cardiaque. In *Congrès de la Société Francaise de Pédiatrie et de l'Association des Pédiatres de Langue Française (APLF)*, 2010. Archives de Pédiatrie 17(6):611-2, PMID: 20654804.

[12] Tommaso Mansi, Xavier Pennec, Maxime Sermesant, Hervé Delingette, and Nicholas Ayache. Logdemons revisited: Consistent regularisation and incompressibility constraint for soft tissue tracking in medical images. In *Proc. of Medical Image Computing and Computer-Assisted Intervention (MICCAI'10), part II*, volume 6362 of *LNCS*, pages 652–659, Beijing, China, September 2010.

[13] Hans Lamecker, Tommaso Mansi, Jatin Relan, Florence Billet, Maxime Sermesant, Nicholas Ayache, and Hervé Delingette. Adaptive tetrahedral meshing for personalized cardiac simulations. In *MICCAI Workshop on Cardiovascular Interventional Imaging and Biophysical Modelling (CI2BM09)*, pages 149–158, London United Kingdom, 2009.

[14] Jatin Relan, Maxime Sermesant, Mihaela Pop, Hervé Delingette, Michel Sorine, Graham Wright, and Nicholas Ayache. Parameter estimation of a 3d cardiac electrophysiology model including the restitution curve using optical and mr data. In Olaf Dössel and Wolfgang C. Schlegel, editors, *World Congress on Medical Physics and Biomedical Engineering*, volume 25/IV of *IFMBE Proceedings*, pages 1716–1719, Munich, Germany, September 2009. Springer.

[15] Tommaso Mansi, Stanley Durrleman, Boris Bernhardt, Maxime Sermesant, Hervé Delingette, Ingmar Voigt, Philipp Lurz, Andrew M Taylor, Julie Blanc, Younes Boudjemline, Xavier Pennec, and

Nicholas Ayache. A statistical model of right ventricle in tetralogy of fallot for prediction of remodelling and therapy planning. In *Proc. Medical Image Computing and Computer Assisted Intervention (MICCAI'09)*, volume 5761 of *Lecture Notes in Computer Science*, pages 214–221, London, UK, September 2009. Springer.

[16] Jatin Relan, Maxime Sermesant, Hervé Delingette, Mihaela Pop, Graham Wright, and Nicholas Ayache. Quantitative comparison of two cardiac electrophysiology models using personalisation to optical and mr data. In *IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI'09)*, pages 1027–1030, Boston, MA, July 2009.

[17] Maxime Sermesant, Florence Billet, Radomir Chabiniok, Tommaso Mansi, Phani Chinchapatnam, Philippe Moireau, Jean-Marc Peyrat, Kawal Rhode, Matt Ginks, Pier Lambiase, Simon Arridge, Hervé Delingette, Michel Sorine, Aldo Rinaldi, Dominique Chapelle, Reza Razavi, and Nicholas Ayache. Personalised electromechanical model of the heart for the prediction of the acute effects of cardiac resynchronisation therapy. In *Proceedings of Functional Imaging and Modeling of the Heart 2009 (FIMH'09)*, volume 5528 of *LNCS*, pages 239–248, 3-5 June 2009.

[18] Florence Billet, Maxime Sermesant, Hervé Delingette, and Nicholas Ayache. Cardiac motion recovery and boundary conditions estimation by coupling an electromechanical model and cine-mri data. In *Proceedings of Functional Imaging and Modeling of the Heart 2009 (FIMH'09)*, volume 5528 of *LNCS*, pages 376–385, 3-5 June 2009.

[19] Tommaso Mansi, Jean-Marc Peyrat, Maxime Sermesant, Hervé Delingette, Julie Blanc, Younes Boudjemline, and Nicholas Ayache. Physically-constrained diffeomorphic demons for the estimation of 3d myocardium strain from cine-mri. In *Proceedings of Functional Imaging and Modeling of the Heart 2009 (FIMH'09)*, volume 5528 of *LNCS*, pages 201–210, 3-5 June 2009.

[20] Tommaso Mansi, Barbara André, Michael Lynch, Maxime Sermesant, Hervé Delingette, Younes Boudjemline, and Nicholas Ayache. Virtual pulmonary valve replacement interventions with a personalised cardiac electromechanical model. In Nadia Magnenat-Thalmann, Jian J. Zhang, and David D. Feng, editors, *Recent Advances in the 3D Physiological Human*, pages 201–210. Springer, November 2009.

[21] Jérôme Schmid, Anders Sandholm, François Chung, Daniel Thalmann, Hervé Delingette, and Nadia Magnenat-Thalmann. Musculoskeletal simulation model generation from mri datasets and motion capture data. In Nadia Magnenat-Thalmann, Jian J. Zhang, and David D. Feng, editors, *Recent Advances in the 3D Physiological Human*, pages 3–19. Springer, February 2009.

[22] François Chung and Hervé Delingette. Multimodal prior appearance models based on regional clustering of intensity profiles. In Guang-Zhong Yang, David Hawkes, Daniel Rueckert, Alison Noble, and Chris Taylor, editors, *Medical Image Computing and Computer-Assisted Intervention (MICCAI'09), Part II*, volume 5762 of *Lecture Notes in Computer Science*, pages 1051–1058, London, UK, September 2009. Springer.

[23] Tobias Heimann, François Chung, Hans Lamecker, and Hervé Delingette. Subject-specific ligament models: Towards real-time simulation of the knee joint. In *Computational Biomechanics for Medicine IV Workshop 2009*, September 2009.

[24] Hervé Delingette. Biquadratic and quadratic springs for modeling st venant kirchhoff materials. In *Fourth International Symposium on BioMedical Simulation (ISBMS'08)*, volume 5104 of *Lecture Notes in Computer Science*, pages 40–48, London, UK, July 2008. Springer.

[25] Barbara André and Hervé Delingette. Versatile design of changing mesh topologies for surgery simulation. In *Fourth International Symposium on BioMedical Simulation (ISBMS'08)*, volume 5104 of *Lecture Notes in Computer Science*, pages 147–156, London, UK, July 2008. Springer.

[26] Florence Billet, Maxime Sermesant, Hervé Delingette, and Nicholas Ayache. Cardiac motion recovery by coupling an electromechanical model and cine-mri data: First steps. In K. Miller and P.M.F. Nielsen, editors, *Proc. of the Workshop on Computational Biomechanics for Medicine III. (Workshop MICCAI-2008)*, September 2008.

[27] Jean-Marc Peyrat, Hervé Delingette, Maxime Sermesant, Xavier Pennec, Chenyang Xu, and Nicholas Ayache. Registration of 4d time-series of cardiac images with multichannel diffeomorphic demons. In Dimitris Metaxas, Leon Axel, Gabor Fichtinger, and Gábor Székely, editors, *Proc. Medical Image Computing and Computer Assisted Intervention (MICCAI'08)*, volume 5242 of *Lecture Notes in Computer Science*, pages 972–979, New York, USA, September 2008. Springer.

[28] Damien Lepiller, Maxime Sermesant, Mihaela Pop, Hervé Delingette, Graham A. Wright, and Nicholas Ayache. Cardiac electrophysiology model adjustment using the fusion of mr and optical imaging. In Dimitris N. Metaxas, Leon Axel, Gabor Fichtinger, and Gábor Székely, editors, *Proc. Medical Image Computing and Computer Assisted Intervention (MICCAI'08)*, volume 5241 of *Lecture Notes in Computer Science*, pages 678–685. Springer, 2008.

[29] N. Toussaint, T. Mansi, H. Delingette, Nicholas Ayache, and M. Sermesant. An integrated platform for dynamic cardiac simulation and image processing: Application to personalised tetralogy of fallot simulation. In *Proc. Eurographics Workshop on Visual Computing for Biomedicine (VCBM)*, Delft, The Netherlands, 2008.

[30] Jérémie Allard, Stéphane Cotin, François Faure, Pierre-Jean Bensoussan, François Poyer, Christian Duriez, Hervé Delingette, and Laurent Grisoni. Sofa: an open source framework for medical simulation. In *Studies in health technology and informatics, Medicine Meets Virtual Reality (MMVR)*, pages 13–18, 2007.

[31] Jimena Costa, Hervé Delingette, and Nicholas Ayache. Automatic segmentation of the bladder using deformable models. In *Proceedings of IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI'07)*, pages 904–907, Metro Washington DC, USA, 2007.

[32] Jimena Costa, Hervé Delingette, Sébastien Novellas, and Nicholas Ayache. Automatic segmentation of bladder and prostate using coupled 3d deformable models. In Nicholas Ayache, Sébastien Ourselin, and Anthony Maeder, editors, *Proc. Medical Image Computing and Computer Assisted Intervention (MICCAI'07)*, volume 4791 of *LNCS*, pages 252–260, Brisbane, Australia, October 2007. Springer.

[33] H. Delingette, M. Sermesant, J.-M. Peyrat, N. Ayache, K. Rhode, R. Razavi, E. McVeigh, D. Chapelle, J. Sainte-Marie, P. Moireau, M. Fernandez, J.-F. Gerbeau, K. Djabella, Q. Zhang, and M. Sorine. Cardiosense3d: Patient-specific cardiac simulation. In *Proceedings of IEEE International Conference on Biomedical Imaging: From Nano to Macro (ISBI'07)*, pages 628–631, Metro Washington DC, USA, 12-15 April 2007.

[34] François Faure, Jérémie Allard, Stéphane Cotin, Paul Neumann, Pierre-Jean Bensoussan, Christian Duriez, Hervé Delingette, and Laurent Grisoni. Sofa: A modular yet efficient simulation framework. In *Surgetica*, 2007.

[35] E. Konukoglu, O. Clatz, Pierre-Yves Bondiau, Maxime Sermesant, H. Delingette, and N. Ayache. Towards an identification of tumor growth parameters from time series of images. In Nicholas Ayache, Sébastien Ourselin, and Anthony Maeder, editors, *Proc. Medical Image Computing and Computer Assisted Intervention (MICCAI)*, volume 4791 of *LNCS*, pages 549–556, Brisbane, Australia, October 2007. Springer.

[36] E. Konukoglu, M. Sermesant, O. Clatz, J.-M. Peyrat, H. Delingette, and N. Ayache. A recursive anisotropic fast marching approach to reaction diffusion equation: Application to tumor growth modeling. In *Proceedings of the 20th International Conference on Information Processing in Medical Imaging (IPMI'07)*, volume 4584 of *LNCS*, pages 686–699, 2-6 July 2007.

[37] Jean-Marc Peyrat, Maxime Sermesant, Hervé Delingette, Xavier Pennec, Chenyang Xu, Elliot McVeigh, and Nicholas Ayache. Statistical comparison of cardiac fibre architectures. In *Proceedings of Functional Imaging and Modeling of the Heart 2007 (FIMH'07)*, volume 4466 of *LNCS*, pages 413–423, 7-9 June 2007.

[38] M. Sermesant, E. Konukoglu, H. Delingette, Y. Coudiere, P. Chinchaptanam, K.S. Rhode, R. Razavi, and N. Ayache. An anisotropic multi-front fast marching method for real-time simulation of cardiac electrophysiology. In *Proceedings of Functional Imaging and Modeling of the Heart 2007 (FIMH'07)*, volume 4466 of *LNCS*, pages 160–169, 7-9 June 2007.

[39] M. A. Audette, H. Delingette, A. Fuchs, O. Burgert, and K. Chinzei. A topologically faithful, tissue-guided, spatially varying meshing strategy for computing patient-specific head models for endoscopic pituitary surgery simulation. In *Studies in health technology and informatics, Medicine Meets Virtual Reality (MMVR)*, pages 22–27, 2006.

[40] Ender Konukoglu, Olivier Clatz, Pierre-Yves Bondiau, Hervé Delingette, and Nicholas Ayache. Extrapolating tumor invasion margins for physiologically determined radiotherapy regions. In *Proc. of the 9th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI'06), Part I*, number 4190 in LNCS, pages 338–346, 2-4 October 2006.

[41] Jean-Marc Peyrat, Maxime Sermesant, Hervé Delingette, Xavier Pennec, Chenyang Xu, Elliot McVeigh, and Nicholas Ayache. Towards a statistical atlas of cardiac fiber structure. In *Proc. of the 9th International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI'06), Part I*, volume 4190 of *LNCS*, pages 297–304. Springer, 2-4 October 2006.

[42] Ender Konukoglu, Olivier Clatz, Pierre-Yves Bondiau, Hervé Delingette, and Nicholas Ayache. Extrapolating tumor invasion margins for physiologically determined radiotherapy regions. Presented in DIMACS Workshop: Computational Tumor Modeling, 2006.

[43] M. A. Audette, H. Delingette, A. Fuchs, O. Burgert, and K. Chinzei. A topologically faithful, tissue-guided, spatially varying meshing strategy for computing patient-specific head models for endoscopic pituitary surgery simulation. In *Computer Vision for Biomedical Image Applications (CVBIA)*, LNCS, pages 178–188, Beijing, China, 2005.

[44] Olivier Clatz, Hervé Delingette, Ion-Florin Talos, Alexandra J. Golby, Nicholas Ayache, Ron Kikinis, Ferenc A. Jolesz, and Simon K. Warfield. Hybrid formulation of the model-based non-rigid registration problem to improve accuracy and robustness. In J. Duncan and G. Gerig, editors, *Proceedings of MICCAI'05*, volume 3750 of *LNCS*, pages 295–302. Springer, October 2005.

[45] Valérie Moreau-Villéger, Hervé Delingette, Maxime Sermesant, Hiroshi Ashikaga, Owen Faris, Elliot McVeigh, and Nicholas Ayache. Estimating local apparent conductivity with a 2-d electrophysiological model of the heart. In *Proc. of Functional Imaging and Modeling of the Heart 2005 (FIMH'O5)*, volume 3504 of *LNCS*, pages 256–266. Springer, June 2005.

[46] Christopher Wagner, Olivier Clatz, Ross Feller, Douglas Perrin, Hervé Delingette, Nicholas Ayache, and Robert Howe. Integrating tactile and force feedback with finite element models. In *International Conference on Robotics and Automation (ICRA'05)*, Barcelona, April 2005.

[47] Olivier Clatz, Pierre Yves Bondiau, Hervé Delingette, Grégoire Malandain, Maxime Sermesant, Simon Warfield, and Nicholas Ayache. In silico tumor growth: Application to glioblastomas. In C. Barillot, D.R. Haynor, and P. Hellier, editors, *Proc. of the 7th Int. Conf on Medical Image Computing and Computer-Assisted Intervention - MICCAI 2004 (2)*, volume 3217 of *LNCS*, pages 337–345, Saint-Malo, France, September 2004. Springer.

[48] Olivier Clatz, Hervé Delingette, Ion-Florin Talos, Alexandra Golby, Nicholas Ayache, Ron Kikinis, Ferenc Jolesz, and Simon Warfield. Robust nonrigid registration to capture brain shift from intraoperative mri. In *5th Interventional MRI Symposium*, Cambridge, MA. USA, October 2004.

[49] Clément Forest, Hervé Delingette, and Nicholas Ayache. Surface contact and reaction force models for laparoscopic simulation. In *International Symposium on Medical Simulation*, June 2004.

[50] Luc Soler, Nicholas Ayache, Stéphane Nicolau, Xavier Pennec, Clément Forest, Hervé Delingette, Didier Mutter, and Jacques Marescaux. Virtual reality, augmented reality and robotics in surgical procedures of the liver. In Th. M. Buzug and T. C. Lueth, editors, *Perspectives in Image-guided Surgery. Proceedings of the Scientific Workshop on Medical Robotics, Navigation and Visualization (MRNV) 2004*, pages 476–484, RheinAhrCampus Remagen, Germany, March 11-12 2004. World Scientific.

[51] M.A. Audette, H. Delingette, A. Fuchs, Y. Koseki, and K. Chinzei. A procedure for computing patient-specific anatomical models for finite element-based surgical simulation. In *Seventh Annual Conference of the International Society for Computer Aided Surgery (ISCAS'03)*, London (UK), June 2003.

[52] Olivier Clatz, Hervé Delingette, Eric Bardinet, Didier Dormont, and Nicholas Ayache. Patient specific biomechanical model of the brain: Application to parkinson's disease procedure. In N. Ayache and H. Delingette, editors, *International Symposium on Surgery Simulation and Soft Tissue Modeling (IS4TM'03)*, volume 2673 of *Lecture Notes in Computer Science*, pages 321–331, Juan-les-Pins, France, 2003. INRIA Sophia Antipolis, Springer.

[53] G. Hamarneh, H. Delingette, and M. Henkelman. 3d segmentation of mouse organs from mr images using deformable simplex mesh models. In *International Society for Magnetic Resonance in Medicine, 11th Scientific Meeting (ISMRM'03)*, Toronto (CA), July 2003.

[54] A. Pitiot, H. Delingette, N. Ayache, and P. M. Thompson. Expert-knowledge-guided segmentation system for brain mri. In Randy E. Ellis and Terry M. Peters, editors, *Medical Image Computing and Computer-Assisted Intervention MICCAI'03*, volume 2879 of *LNCS*, pages 644–652, Montreal, November 2003. Springer.

[55] A. Pitiot, H. Delingette, A. Toga, and P. M. Thompson. Learning object correspondences with the observed transport shape measure. In Chris Taylor and J. A. Noble, editors, *Information Processing in Medical Imaging IPMI'03*, volume 2732 of *LNCS*, pages 25–37. Springer, July 2003.

[56] Maxime Sermesant, Olivier Clatz, Zhongze Li, Stéphane Lanteri, Hervé Delingette, and Nicholas Ayache. A parallel implementation of non-rigid registration using a volumetric biomechanical model. In J.C. Gee, J.B. A. Maintz, and M. W. Vannier, editors, *Second International Workshop on Biomedical Image Registration WBIR'03*, volume 2717 of *Lecture Notes in Computer Science*, pages 398–407, Philadelphia, PA, USA, 2003. Springer.

[57] M. Sermesant, O. Faris, F. Evans, E. McVeigh, Yves Coudière, H. Delingette, and N. Ayache. Preliminary validation using in vivo measures of a macroscopic electrical model of the heart. In N. Ayache and H. Delingette, editors, *International Symposium on Surgery Simulation and Soft Tissue Modeling (IS4TM'03)*, volume 2673 of *Lecture Notes in Computer Science*, pages 230–243, Juan-les-Pins, France, 2003. INRIA Sophia Antipolis, Springer.

[58] Clément Forest, Hervé Delingette, and Nicholas Ayache. Cutting simulation of manifold volumetric meshes. In *Modelling & Simulation for Computer-aided Medicine and Surgery (MS4CMS'02)*, 2002.

[59] Clément Forest, Hervé Delingette, and Nicholas Ayache. Cutting simulation of manifold volumetric meshes. In Takeyoshi Dohi and Ron Kikinis, editors, *Medical Image Computing and Computer-Assisted Intervention (MICCAI'02)*, volume 2488 of *LNCS*, pages 235–244, Tokyo, September 2002. Springer.

[60] Clément Forest, Hervé Delingette, and Nicholas Ayache. Removing tetrahedra from a manifold mesh. In *Computer Animation (CA'02)*, pages 225–229, Geneva, Switzerland, June 2002. IEEE Computer Society.

[61] M. Sermesant, Y. Coudière, H. Delingette, and N. Ayache. Progress towards an electro-mechanical model of the heart for cardiac image analysis. In *IEEE International Symposium on Biomedical Imaging (ISBI'02)*, pages 10–14, 2002.

[62] M. Sermesant, Y. Coudière, H. Delingette, N. Ayache, J. Sainte-Marie, D. Chapelle, F. Clément, and M. Sorine. Progress towards model-based estimation of the cardiac electromechanical activity from ecg signals and 4d images. In Marc Thiriet, editor, *Modelling and Simulation for Computer-aided Medicine and Surgery (MS4CMS'02)*, volume 12 of *ESAIM: PROC*, pages 153–162. European Series in Applied and Industrial Mathematics, 2002.

[63] Maxime Sermesant, Clément Forest, Xavier Pennec, Hervé Delingette, and Nicholas Ayache. Biomechanical model construction from different modalities: Application to cardiac images. In Takeyoshi Dohi and Ron Kikinis, editors, *Medical Image Computing and Computer-Assisted Intervention (MICCAI'02)*, volume 2488 of *LNCS*, pages 714–721, Tokyo, September 2002. Springer.

[64] C. Allouche, S. Makram, N. Ayache, and H. Delingette. A new kinetic modeling scheme for the human left ventricle wall motion with mr-tagging imaging. In T. Katila, I.E. Magnin, P. Clarysse, J. Montagnat, and J. Nenonen, editors, *Functional Imaging and Modeling of the Heart (FIMH'01), Helsinki, Finland*, volume 2230 of *LNCS*, pages 61–68. Springer, 2001.

[65] C. Allouche, S. Makram, N. Ayache, and H. Delingette. New methods and algorithms for the accurate real-time motion analysis of the left ventricle with mri-tagging imaging. In *Computer Assisted Radiology and Surgery (CARS)*, volume 1230, pages 911–916. Elsevier, June 2001.

[66] N. Ayache, D. Chapelle, F. Clément, Y. Coudière, H. Delingette, J.A. Désidéri, M. Sermesant, M. Sorine, and J. Urquiza. Towards model-based estimation of the cardiac electro-mechanical activity from ecg signals and ultrasound images. In T. Katila, I.E. Magnin, P. Clarysse, J. Montagnat, and Nenonen J., editors, *Functional Imaging and Modeling of the Heart (FIMH'01), Helsinki, Finland*, volume 2230 of *LNCS*, pages 120–127. Springer, 2001.

[67] H. Delingette. On smoothness measures of active contours and surfaces. In *IEEE Workshop on Variational and Level Set Methods in Computer Vision (VLSM 2001)*, pages 43–50, Vancouver, Canada, July 2001. IEEE Society.

[68] H. Delingette, E. Bardinet, D. Rey, J-D. Lemarechal, J. Montagnat, S. Ourselin, A. Roche, D. Dormont, J. Yelnik, and N. Ayache. Yav++: a software platform for medical image processing and visualization. In *Workshop on Interactive Medical Image Visualization and Analysis satellite symposia of MICCAI, IMIVA'01*, Utrecht, The Netherlands, October 2001.

[69] G. Odin, G. Quatrehomme, G. Subsol, H. Delingette, B. Mafart, and M.A. de Lumley. Comparison of a three-dimensional and a computerized assisted method for cranio-facial reconstruction: Application to tautavel man. In *XIV International Congress of Prehistoric and Protohistoric Science (Pre-prints)*, page 23, Liège (Belgium), September 2001. Université de Liège.

[70] G. Picinbono, H. Delingette, and N. Ayache. Non-linear and anisotropic elastic soft tissue models for medical simulation. In *ICRA2001: IEEE International Conference Robotics and Automation*, Seoul Korea, May 2001. Best conference paper award.

[71] M. Sermesant, Y. Coudière, H. Delingette, N. Ayache, and J.A. Désidéri. An electro-mechanical model of the heart for cardiac image analysis. In W.J. Niessen and M.A. Viergever, editors, *4th Int. Conf. on Medical Image Computing and Computer-Assisted Intervention (MICCAI'01)*, volume 2208 of *LNCS*, pages 224–231, Utrecht, The Netherlands, October 2001.

[72] H. Delingette and J. Montagnat. New algorithms for controlling active contours shape and topology. In D. Vernon, editor, *European Conference on Computer Vision (ECCV'2000)*, number 1843 in LNCS, pages 381–395, Dublin, Ireland, June 2000. Springer.

[73] H. Delingette. Surgery simulation. In *Fourth IEEE EMBS International Summer School on Biomedical Imaging*, Berder, France, June 2000. IEEE EMBS.

[74] J. Montagnat and H. Delingette. Space and time shape constrained deformable surfaces for 4d medical image segmentation. In *Medical Image Computing and Computer-Assisted Intervention (MICCAI'2000)*, volume 1935 of *Lectures Notes in Computer Science*, pages 196–205, Pittsburgh, USA, October 2000. Springer.

[75] G. Picinbono, J.-C. Lombardo, H. Delingette, and N. Ayache. Anisotropic elasticity and forces extrapolation to improve realism of surgery simulation. In *ICRA2000: IEEE International Conference Robotics and Automation*, pages 596–602, San Francisco USA, April 2000.

[76] B. Marfart, H. Delingette, and G. Subsol, editors. *Three Dimensional Imaging in PaleoAnthropology and Prehistoric Archeology*, Liege, Belgium, 2002. BAR International Series 1049.

[77] L. Soler, H. Delingette, G. Malandain, J. Montagnat, N. Ayache, J.-M. Clément, C. Koehl, O. Dourthe, D. Mutter, and J. Marescaux. A fully automatic anatomical, pathological and fonctionnal segmentation from ct-scans for hepatic surgery. In *Medical Imaging 2000*, SPIE proceedings, pages 246–255, San Diego, February 2000. SPIE.

[78] L. Soler, J.-M. Clément, C. Koehl, H. Delingette, G. Malandain, N. Ayache, O. Dourthe, and J. Marescaux. An automatic virtual patient reconstruction from ct-scans for hepatic surgical planning. In *Medicine Meets Virtual Reality (MMVR'2000)*, Studies in Health Technology and Informatic, Los Angeles, January 2000. IOS press.

[79] H. Delingette, S. Cotin, and N. Ayache. A hybrid elastic model allowing real-time cutting deformations and force feedback for surgery training and simulation. In N. Thalmann and D. Thalmann, editors, *Computer Animation (Computer Animation'99)*, pages 70–81. IEEE Computer Society, May 1999.

[80] H. Delingette, S. Cotin, and N. Ayache. Efficient linear elastic models of soft tissues for real time surgery simulation. In *Medecine Meets Virtual Reality VII*, Interactive Technology and the New Paradigm for He althcare, pages 139–151. IOS Press, January 1999.

[81] H. Delingette. Simulation d'interventions chirurgicales. In *12ème journées de l'association Française d'Infographie Graphique (AFIG'99)*, pages 37–48, Reims, November 1999.

[82] D. Rey, G. Subsol, H. Delingette, and N. Ayache. Using continuum mechanics operators for detection and quantification of evolving processes in 3d medical images. In *EUROMECH'99*, pages 185–188, Warsaw, Poland, May 1999. IPPT PAN.

[83] J. Montagnat, H. Delingette, and G. Malandain. Cylindrical echocardiographic images segmentation based on 3d deformable models. In *Medical Image Computing and Computer-Assisted Intervention (MICCAI'99)*, volume 1679 of *Lectures Notes in Computer Science*, pages 168–175, Cambridge, UK, September 1999. Springer.

[84] D. Rey, G. Subsol, H. Delingette, and N. Ayache. Automatic detection and segmentation of evolving processes in 3d medical images: Application to multiple sclerosis. In A. Kuba, M. SM-amal, and A. Todd-Pokropek, editors, *Information Processing in Medical Imaging, IPMI'99*, LNCS, pages 154–167, Visegrád, Hungary, June 1999. Springer.

[85] H. Delingette. Initialization of deformable models from 3d data. In *Proceedings of the Sixth Int. Conf. on Computer Vision (ICCV'98)*, pages 311–316, Bombay, India, January 1998.

[86] Nicholas Ayache, Stephane Cotin, and Hervé Delingette. Surgery simulation with visual and haptic feedback. In Y. Shirai and S. Hirose, editors, *Robotics Research, the Eigth International Symposium*, pages 311–316. Springer, 1998.

[87] S. Valente, J.-L. Dugelay, and H. Delingette. An analysis/synthesis cooperation for head tracking and video face cloning. In *Workshop on Perception of Human Action, ECCV Conference*, Freiburg, Germany, 6 juin 1998.

[88] L. Soler, G. Malandain, J. Montagnat, H. Delingette, N. Ayache, J.M. Clément, C. Roy, Y. Russier, V. Tassetti, and J. Marescaux. Automatic segmentation of portal vein in ct-scans of the liver. In *Proceedings of World Congress on Medical Physics and Biomedical Engineering*, page 788, Nice, France, 1997.

[89] J. Montagnat, H. Delingette, N. Ayache, J.M. Clément, C. Roy, Y. Russier, V. Tassetti, and J. Marescaux. Liver segmentation in contrast enhanced helical ct-scans. In *Proceedings of World Congress on Medical Physics and Biomedical Engineering*, Nice, France, 1997.

[90] J. Montagnat and H. Delingette. Volumetric medical images segmentation using shape constrained deformable models. In *Proceedings of the First Joint Conference CVRMed-MRCAS'97*, volume 1205 of *Lecture Notes in Computer Science*, pages 13–22, March 1997.

[91] H. Delingette. Decimation of isosurfaces with deformable models. In *Computer Vision, Virtual Reality and Robotics in Medicine*, pages 83–92, March 1997.

[92] H. Delingette, O. Seguin, R. Perrocheau, and P. Ménégazzi. Accuracy evaluation of 3d reconstruction from ct-scan images for inspection of industrial parts. In CEPADUES Ed., editor, *Proceedings on the Conference on Quality Control with Artificial Vision (QCAV'97)*, Le Creusot, France, May 1997.

[93] S. Cotin, H. Delingette, and N. Ayache. Real time volumetric deformable models for surgery simulation. In *Visualization in Biomedical Computing, Proceedings*, volume 1131 of *Lecture Notes in Computer Science*. Springer, September 1996.

[94] S. Cotin, H. Delingette, J.-M. Clement, V. Tassetti, J. Marescaux, and N. Ayache. Volumetric deformable models for simulation of laparoscopic surgery. In *Proceedings of the International Symposium on Computer and Communication Systems for Image Guided Diagnosis and Therapy, Computer Assisted Radiology (CAR'96)*, volume 1124 of *International Congress Series*. Elsevier, June 1996.

[95] S. Cotin, H. Delingette, J-M. Clément, V. Tassetti, J. Marescaux, and N. Ayache. Geometric and physical representations for a simulator of hepatic surgery. In *Medecine Meets Virtual Reality IV*, volume 29 of *Studies in Health Technology and Informatics*, pages 139–151, San Diego, USA, January 1996. IOS Press.

[96] G. Quatrehomme, H. Delingette, S. Cotin, G. Subsol, M. Fidrich, P. Bailet, G. Grevin, and A. Ollier. A fully tridimensional method for facial reconstruction based on deformable models. In *International Association for Craniofacial Identification*, November 1995.

[97] H. Delingette. Simplex meshes: a general representation for 3d shape reconstruction. In *Proc. of Int. Conf. on Computer Vision and Pattern Recognition (CVPR'94)*, pages 856–857, Seattle, USA, June 1994.

[98] H. Delingette. Intrinsic stabilizers of planar curves. In *3rd European Conference on Computer Vision (ECCV'94)*, Stockholm, Sweden, June 1994.

[99] K. Higuchi, H. Delingette, M. Hébert, and K. Ikeuchi. Merging multiple views using a spherical representation. In *Proceedings of 2nd IEEE Workshop on CAD-based Vision*, Pittsburgh, PA, 1994.

[100] H. Delingette. Adaptive and deformable models based on simplex meshes. In *IEEE Workshop of Non-Rigid and Articulated Objects*, Austin, Texas, November 1994.

[101] H. Delingette, Y. Watanabe, and Y. Suenaga. Simplex based animation. In N. Thalmann and D. Thalmann, editors, *Models and Techniques in Computer Animation (Computer Animation'93)*, pages 13–28. Springer, May 1993.

[102] H. Delingette, M. Hebert, and K. Ikeuchi. A spherical representation for the recognition of curved objects. In *Proceedings of the Fourth International Conference on Computer Vision (ICCV'93)*, pages 103–112, Berlin, May 1993. IEEE.

[103] H. Delingette, M. Hébert, and K. Ikeuchi. Shape representation and image segmentation using deformable surfaces. In *IEEE Computer Vision and Pattern Recognition (CVPR'91)*, pages 467–472, Maui, Hawai, June 1991.

[104] H. Delingette, M. Hébert, and K. Ikeuchi. Trajectory generation with curvature constraint based on energy minimization. In *Int. Robotics Systems (IROS'91)*, Osaka, November 1991.

[105] H. Delingette, M. Hébert, and K. Ikeuchi. Shape representation and image segmentation using deformable surfaces. In *Geometric Methods in Computer Vision, SPIE, Vol. 1570*, pages 467–472, San Diego, June 1991.

[106] T. Choi, H. Delingette, M. Hébert, and K. Ikeuchi. A perception and manipulation system for collecting rock samples. In *SOAR*, 1990.

[107] H. Delingette, M. Hébert, and K. Ikeuchi. Energy functions for regularization algorithm. In *Geometric Methods in Computer Vision, SPIE Vol. 1570*, pages 104–115. SPIE, 1991.

[108] H. Delingette, M. Hébert, and K. Ikeuchi. A spherical representation for the recognition of curved objects. In *Image Understanding Workshop*, pages 547–838, 1993.

National Conference Articles (Peer Reviewed)

[1] Tommaso Mansi, Barbara André, Maxime Sermesant, Hervé Delingette, Nicholas Ayache, and Younes Boudjemline. Simulation personnalisée de replacements valvulaires pulmonaires grâce à l'utilisation d'un modèle mathématique du coeur. Archives de Pédiatrie - Congrès des Sociétés Françaises Médico-chirurgicales Pédiatriques, June 2009.

[2] François Chung, Jérôme Schmid, Olivier Clatz, Nadia Magnenat-Thalmann, and Hervé Delingette. Reconstruction 3d des structures anatomiques des membres inférieurs. In *ORASIS'09*, June 2009.

[3] Jimena Costa, Hervé Delingette, Jean-Christophe Diaz, William Wibault, and Ann Egelmeers. Towards an automatic delineation of lower abdomen structures for conformational radiotherapy based on ct images. Proceedings of the 44èmes Journées Scientifiques de la Société Française de Physique Médicale (SFPM), June 2005.

[4] Olivier Clatz, Pierre-Yves Bondiau, Hervé Delingette, and Nicholas Ayache. Modélisation macroscopique de la croissance des tumeurs cérébrales. In *Congrès Français de Mécanique (CFM)*, Troyes, August 2005.

[5] Olivier Clatz, Hervé Delingette, Eric Bardinet, Didier Dormont, and Nicholas Ayache. Détermination d'un modèle biomécanique du cerveau par l'analyse d'images : application à la maladie de parkinson. In *Congrès Français de Mécanique (CFM)*, 2003.

[6] H. Delingette. Simulation d'interventions chirurgicales. In *Conférence AIM'2001*, CHU La Pitié-Salpétrière, Paris, June 2001.

[7] H. Delingette. Simulation d'interventions chirurgicales. In E. Dombre and W. Khalil, editors, *Deuxièmes Journées de la Recherche en Robotique (JNRR'99)*, pages 109–118, Montpellier, September 1999.

[8] H. Delingette. La simulation médicale. In *Colloque Technologies pour la santé : Refléxions pour l'avenir*, Paris, November 1999. SFGBM.

[9] L. Soler, G. Malandain, and H. Delingette. Segmentation automatique : application aux angioscanners 3d du foie. In *Proceedings of Sixth Orasis conference (ORASIS'97)*, La Colle-sur-Loup, France, 1997.

[10] J. Montagnat and H. Delingette. Reconstruction surfacique et segmentation robuste à base de maillages déformables. In *Proceedings of Sixth Orasis conference (ORASIS'97)*, La Colle-sur-Loup, France, 1997.

[11] S. Cotin, H. Delingette, J-M. Clément, V. Tassetti, J. Marescaux, and N. Ayache. Simulation de chirurgie hépatique avec système de retour de forces. In *Interface to Real and Virtual Worlds*, pages 139–148. AJIIMD, May 1996.

[12] J.N. Bruneton, F. Schikli, B. Padovani, H. Delingette, and Catherine Maestro. Volumétrie tumorale obtenue à partir d'images scannographiques. In *Actes du 1er Colloque sur l'Imagerie et Traitement d'Images*, Cannes, France, April 1995.

[13] S. Cotin, H. Delingette, and N. Ayache. New perspectives for realistic simulations of hepatic surgery. In *Actes du Congrès Mondial de Télémedecine*, Toulouse, France, December 1995.

[14] F. Schikli, H. Delingette, B. Padovani, C. Maestro, N. Ayache, and J.N. Bruneton. Tomodensimétrie et volumétrie tumorale. Actes des Journées Française de la radiologie (JFR'95), October 1995.

[15] H. Delingette, G. Subsol, S. Cotin, and J. Pignon. Simulation de chirurgie craniofaciale et realite virtuelle. In *Interface des Mondes Reels et Virtuels (IMRV'94)*, pages 399–408, Montpellier, January 1994.

Research Reports

[1] Jean-Marc Peyrat, Maxime Sermesant, Hervé Delingette, Xavier Pennec, Chenyang Xu, Elliot McVeigh, and Nicholas Ayache. Towards a statistical atlas of cardiac fiber architecture. Research report RR-5906, INRIA, May 2006.

[2] Olivier Clatz, Pierre-Yves Bondiau, Hervé Delingette, Maxime Sermesant, Simon Warfield, Grégoire Malandain, and Nicholas Ayache. Brain tumor growth simulation. Research report RR-5187, INRIA, 2004.

[3] V. Moreau-Villéger, H. Delingette, M. Sermesant, O. Faris, E. McVeigh, and N. Ayache. Global and local parameter estimation of a model of the electrical activity of the heart. Research Report RR-5269, INRIA, July 2004.

[4] M. Sermesant, H. Delingette, and N. Ayache. An electromechanical model of the myocardium for cardiac image analysis and medical simulation. Research Report RR-5395, INRIA, November 2004. Submitted to the IEEE Trans. in Medical Imaging.

[5] H. Delingette, G. Subsol, S. Cotin, and J. Pignon. A craniofacial surgery testbed. Research report RR-2199, I.N.R.I.A., Sophia-Antipolis, France, February 1994.

[6] Herve Delingette, Martial Hébert, and Katsuchi Ikeuchi. Representation and recognition of free-form surfaces. Technical Report CMU-CS-92-214, Carnegie-Mellon Univertsity, Pittsburgh, PA, 1992.

[7] H. Delingette. Simplex meshes: a general representation for 3d shape reconstruction. Research report RR-2214, INRIA, March 1994.

[8] H. Delingette. General object reconstruction based on simplex meshes. Research report RR-3111, Inria, February 1997.

[9] S. Valente, J.-L. Dugelay, and H. Delingette. Geometric and photometric head modeling for facial analysis technologies. Technical Report RR-98-041, Institut Eurecom, 1998.

[10] S. Cotin, H. Delingette, and N. Ayache. Real-time elastic deformations of soft tissues for surgery simulation. Research report RR-3511, INRIA, 1998.

[11] S. Cotin, H. Delingette, and N. Ayache. Efficient linear elastic models of soft tissues for real-time surgery simulation. Research report RR-3510, INRIA, 1998.

[12] H. Delingette. Towards realistic soft tissue modeling in medical simulation. Research report RR-3506, INRIA, 1998.

[13] H. Delingette and J. Montagnat. Topology and shape constraints on parametric active contours. Research report RR-3880, INRIA, 2000.

[14] J. Montagnat, H. Delingette, N. Scapel, and N. Ayache. Representation, shape, topology and evolution of deformable surfaces. application to 3d medical image segmentation. Research report RR-3954, INRIA, 2000.

[15] J. Montagnat and H. Delingette. Spatial and temporal shape constrained deformable surfaces for 3d and 4d medical image segmentation. Research report RR-4078, INRIA, 2000.

[16] D. Rey, G. Subsol, H. Delingette, and N. Ayache. Automatic detection and segmentation of evolving processes in 3d medical images: application to multiple sclerosis. Research report RR-3559, INRIA, November 1998.

[17] G. Picinbono, H. Delingette, and N. Ayache. Non-linear anisotropic elasticity for real-time surgery simulation real-time elastic deformations of soft tissues for surgery simulation. Research report RR-4028, INRIA, 2000.

[18] G. Picinbono, H. Delingette, and N. Ayache. Improving realism of a surgery simulator : Linear anisotropic elasticity, complex interactions and force extrapolation. Research report RR-4018, INRIA, 2000.